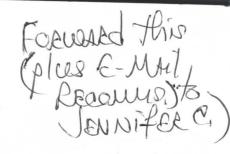
FILE LOOM

Back Bay National Wildlife Refuge 2000 Marshbird Callback Survey



Survey Method

Last year's selection of points based on three mini-surveys was used as the basis of the route chosen for this year's survey. A series of 18 points from those three surveys was chosen to give a continuous series of points along the refuge impoundments. Two sites were rejected as having too much woods. The 18 sites on the 2000 survey began just south of the headquarters complex, proceeded along the west dike past the entrance to False Cape State Park, and came back along the east dike with one site on the south cross dike. The latitude and longitude of each site was marked with a GPS reading from a Magellan GPS 315. The location of each site by this method was reproducible to approximately +/- twenty feet. A map of the route used in the 18 site 2000 survey is included. The numbering of the sites for both 1999 and 2000 is included on the map.

This route was first surveyed on May 19, 2000 when the callback technique was tried. The wind during this survey was a little too high for the survey to be officially accepted and only 12 of the sites were sampled. During the other three surveys on May 23, June 4, and June 14, 2000 all 18 sites were surveyed according to the official protocol. A bicycle was used for transportation and little or no interference was encountered during the survey. A Sony CFD 980 boom box was used and transported conveniently in a bicycle saddlebag. At each survey point the boom box was placed on the rear of the bicycle, turned on, and the ten minute tape cycle begun. The Coastal Callback tape was used. All the birds seen or heard during the ten minute sampling period were recorded on the Callback Evaluation Data Sheet. After the ten minute period, the boom box was turned off, the tape was turned over, the boom box was returned to the bicycle saddlebag, and the bicycle driven to the next survey point as dictated by the GPS reading. By the third survey moving from one survey point to another was very straightforward and the entire route was covered in about 4 ½ hours. The first and the third surveys were covered from point 1 to point 18, while the second survey was covered in reverse order, from point 18 to point 1. All the surveys except the preliminary survey met the recommended weather criteria. I was the only observer except for the habitat survey during which John Gallegos accompanied me and pointed out the more important plant communities present at each site.

Results

The results of each of the surveys is given in the appendix along with the original data sheets. A total of 83 species were observed. The total number of individuals recorded for each of the target species is as follows: King Rail (25), American Coot (14), Pied-billed Grebe (18), Sora (1), Wood Duck (31), Common Moorhen (3), Least Bittern (5). The only time Sora was heard was on the preliminary survey which was the earliest survey. Least Bittern was not recorded on the first two surveys. Common Moorhen was recorded only on the first and last surveys. There were no observations of or responses from Black Rail and Virginia Rail. A summary of each of the four surveys is also included in the appendix.

A brief analysis of the callbacks shows that for King Rail seven callbacks occurred during the passive period, 15 occurred during the King Rail taped call, 8 occurred during the taped call of another species. There were two observations of King Rail with no callback. Several other target species gave callbacks that were not well correlated with the species' taped call. These numbers are summarized in the appendix.

Recommendations

My recommendations for next year are to continue the 18 point survey route. I think it a very reasonable sampling of the habitats in the main section of the refuge. I think three surveys are adequate. I believe the current marshbird callback protocol to be a reasonable one and it should be followed on this route for the remaining four years of the survey. The first survey, however, should be around May 1 to increase the chances of sampling migrant marshbirds like Sora. The second survey should be during late May and the last during mid June. Least Bitterns were more active during June, so it is important to include June dates. King Rails seemed to be active through the entire survey period. As a note of interest, I did not encounter any possible Clapper Rails during the refuge surveys.

Because of the early start times of the surveys it is imperative that the observer be issued a passkey to get onto the refuge before it is officially opened.

Two enhancements to the survey should be explored next year. The first is surveying and establishing a water route probably by canoe and the second is conducting nighttime surveys. Both of these were suggested in the 1999 report and I support them for 2001.

Summary of Marshbird Callback Survey

| | Prelim | Survey 1 | Survey 2 | Survey 3 |
|-------------------|----------|----------|----------|----------|
| Data of curroy | 05/19/00 | 05/23/00 | 06/04/00 | 06/14/00 |
| Date of survey | 05/19/00 | | | 06/14/00 |
| # points surveyed | 12 | 18 | 18 | 18 |
| Starting time | 6:27 | 5:22 | 5:43 | 5:27 |
| Ending time | 9:43 | 10:24 | 10:27 | 10:06 |
| Route direction | N-S | N-S | S-N | N-S |
| Wind | S 15 | ESE 0-3 | E 5-7 | NNE 0-5 |
| Cloud cover | 20% | na | 20% | fog |
| Starting temp | 66F | 64F | 64F | 72F |
| Ending temp | 81F | 67F | 71F | na |
| Least Bittern | | | 2 | 3 |
| Wood Duck | 6 | 10 | 8 | 7 |
| King Rail | 3 | 9 | 8 | 5 |
| Sora | 1 | | | |
| Common Moorhen | 1 | | | 2 |
| American Coot | | 2 | 1 | 11 |

Variety of responses by target species to Coastal Callback Tape

| | Responded during passive period | Responded to taped call of its own species | Responded to taped call of another species | Recorded visually with no vocalization |
|-------------------|---------------------------------------|--|--|--|
| Pied-billed Grebe | 7 | | 5 | 5 |
| Least Bittern | 4 | | 1 | |
| King Rail | 7 | 15 | 8 | 2 |
| Sora | | | 1 | |
| Common Moorhen | | | | 2 |
| American Coot | | | | 2 |

Trial Marshbird Callback Survey May 19, 2000

| Species | Pt 1 | Pt 2 | Pt 3 | Pt 4 | Pt 5 | Pt 6 | Pt | 7 F | Pt 8 | Pt | 9 Pt | 10 | Pt | 11 | Pt 1 |
|--------------------------|------|------|-------|------|-------|------|----|--------|------|-----|------|-----|----|----|------|
| Pied-billed Grebe | | | | 1 | | | | | | | | | | | |
| Wood Duck | | | | | | | | | | | 2 | | | 4 | |
| King Rail | | 2 | | 1 | | | | | | | | | | | |
| Sora | | | | | 1 | | | | | | | | | | |
| Common Moorhen | | | | | | | | | | | 1 | | | 1 | |
| Double-crested Cormorant | | | | 1 | 1 fly | 2 | | | 38 | | | | | - | |
| Great Blue Heron | | | 2fly | | | | - | 1 | | | | | | | |
| Great Egret | | | 4 fly | | 1 | | | Ť | | | 1 | 1 | | 1 | 10 |
| Snowy Egret | | | | | | | | \top | | | | | | 2 | 1 |
| Canada Goose | | | | | | | | | | | - | | | 4 | |
| American Black Duck | | | | | | | | | | | | | | | |
| Mallard | | | | 2 | 2 | 1 | | \top | | | | | | | |
| Osprey | | | | | 1 | | | | 1 | | 1 | | | - | |
| Killdeer | | | | | 1 | | | 1 | | | | | | | |
| Greater Yellowlegs | | | | 1 | | | | 1 | | | - | 1 | | 3 | |
| Lesser Yellowlegs | | | 1 | | | 2 | | + | 1 | | + | - ' | | 3 | |
| Solitary Sandpiper | | | | | | | | 1 | -+ | | - | | | - | |
| Spotted Sandpiper | | | | | | | | - | - | | | | | - | 2 |
| Short-billed Dowitcher | | | | | 7 fly | | | | | | | | | | |
| Semi-palmated Sandpiper | | | | | , | | | + | | | - | | | - | 1 |
| Least Sandpiper | | | | | 3 fly | 1 | | + | | | | | | - | |
| shorebird sp | | | | | | 30 | | + | | | - | | | + | 200 |
| Laughing Gull | | | | | 2 | | | + | | | - | | | - | 200 |
| Yellow-breasted Chat | | | 1 | | 1 | | | + | | | + | - | | - | |
| Blackpoll Warbler | | | | | | | | + | | | | | | 1 | |
| Common Yellowthroat | | | 1 | | 1 | 1 | | + | | | - | 1 | | - | 1 |
| Yellow-shafted Flicker | | | | | - 1 | • | | + | - | | | 1 | | - | |
| Great Crested Flycatcher | | | | | 1 | 1 | | + | 1 | 1 | | | | - | |
| Eastern Kingbird | | | | | • | ' | | + | - 1 | - 1 | - | | | 2 | |
| American Crow | | | | | | | 1 | 1 | - | 1 | - | 1 | | 1 | |
| Carolina Wren | | | | | | 1 | | - | - | 1 | | - 1 | | | 4 |
| Blue Grosbeak | | | | | | - | | + | - | - 1 | | | | + | 1 |
| Rufous-sided Towhee | | | | | | | | + | _ | 1 | | - | | - | 1 |
| Red-winged Blackbird | | | Х | Х | Х | х | X | | X | X | | ~ | | V | |
| Boat-tailed Grackle | | | 2 | | | ^ | ^ | - | ^ | | | X | | 2 | X |
| Common Grackle | | | _ | | | | | + | 2 | | | 6 | | 4 | -1 |
| Brown-headed Cowbird | | | | | | | | - | 4 | | | 0 | | 1 | |

Marshbird Callback Survey May 23, 2000 (5304)5305 5306 5307 5308 5309 5310 5311 5312 5313 5314 5315 5316 5317 5318 5318 5320 Pt 1 Pt 2 Pt 3 Pt 4 Pt 5 Pt 6 Pt 7 Pt 8 Pt 9 Pt 10 Pt 11 Pt 12 Pt 13 Pt 14 Pt 15 Pt 16 Pt 17 Pt 18 CENNUM# Species TARGET SPECIES Pied-billed Grebe Wood Duck 6 flv King Rail 1 1 Sora Common Moorhen American Coot OTHER SPECIES **Double-crested Cormorant** 7 flv 18 2 fly Great Blue Heron 1 1+1 flv **Great Egret** 2+1 fly 1 2 fly 6 Snowy Egret 3 flv 1 2+6 flv Tricolored Heron 2 flv Green-backed Heron 1 White Ibis 7 flv Mute Swan 2 Canada Goose 1 American Black Duck 6 flv Mallard 2 + 2 fly Bald Eagle 1 iuv Osprev 1 1 fly **Bobwhite** Black-bellied Plover Semi-palmated Plover 6 10 Killdeer 1 Greater Yellowlegs 1 7 fly 6 Lesser Yellowlegs 1 fly Solitary Sandpiper Spotted Sandpiper 1 1 Short-billed Dowitcher 8 Semi-palmated Sandpiper 10 20 Least Sandpiper 10 shorebird sp 20 fly 30 Laughing Gull Caspian Tern 1 fly Common Tern Mourning Dove Chuck-wills-widow 1 Ruby-throated Hummingbird Red-bellied Woodpecker Downy Woodpecker 1 Yellow-shafted Flicker Great Crested Flycatcher 1

Marshbird Callback Survey May 23, 2000 (cont)

| Eastern Kingbird | 1 | | | 1 | | | | 1 | | 4 | | | _ | | | | | | | |
|----------------------|---|---|-------|---|---|-----|---|---|-----|-----|-----|-----|---|---|---|---|---|---|---|----|
| Purple Martin | | | 2 fly | • | | | | 1 | | 1 | | | | _ | | 1 | | | | |
| Barn Swallow | | | | | 2 | | | | | 2 | | | | | | | | | | |
| Blue Jay | | | | | | | | | | 2 | | | 1 | | | | 2 | | | |
| American Crow | 1 | | | | | 1 | | | 2 | 1 | - | | | | | | 1 | | | |
| Fish Crow | | | | | | - ' | - | | 2 | 1 | 5 | - | 4 | | | | 2 | | | |
| Carolina Chickadee | | | | | | | | | | 1 | | | _ | _ | | | | | | |
| Carolina Wren | 1 | 1 | | | | | | | 1 | 1 | | | | _ | | | | | 2 | |
| Gray Catbird | | 1 | | - | | | | | - 1 | - 1 | | | _ | | | | | | | |
| Brown Thrasher | | | 1 | | | | | 1 | | | | | - | | | - | | | | |
| Cedar Waxwing | | | • | | | | | - | | | 100 | | | _ | | - | 1 | | | |
| White-eyed Vireo | | | | | | | | | | | 100 | | - | - | | - | | | | |
| European Starling | | | | | | | | | 1 | 1 | | | - | - | | - | 1 | | | |
| Yellow Warbler | | | | | | 1 | | | 1 | - ' | | | - | - | | | _ | | | |
| Prairie Warbler | | | | | | | | | | | | 1 | | - | | | | | | |
| Blackpoll Warbler | | | | | | | | | | | | | | - | | - | | | | |
| Common Yellowthroat | | 1 | 2 | 1 | | 1 | | | | 2 | | | - | _ | | - | | | | |
| Yellow-breasted Chat | 1 | | 1 | 1 | | - | | | | | | 1 | - | - | 1 | | | | | |
| Cardinal | 1 | | | | | | | | | | | 1 | - | 2 | | - | 1 | | 1 | |
| Blue Grosbeak | | | | | | | | | | - | | 1 | - | 2 | | - | | | | 1 |
| Indigo Bunting | | | | | | | | | | 1 | | 1 | - | 2 | _ | - | _ | | | |
| Rufous-sided Towhee | | 1 | 1 | | | 1 | | | | ' | 1 | 1 | | 2 | 2 | - | | _ | 1 | |
| Red-winged Blackbird | X | X | Х | Х | Х | X | Х | | Х | Х | X | | | | 1 | | | _ | | |
| Eastern Meadowlark | | | | | | | | | ^ | ^ | ^ | | X | X | 1 | X | X | X | | X |
| Boat-tailed Grackle | | 2 | | | 2 | 3 | | | 2 | | 2 | - 1 | | - | 1 | | | | | |
| Common Grackle | | | | | 2 | | | | 5 | 3 | 1 | 1 | | | | | _ | _ | | 10 |
| Brown-headed Cowbird | | 1 | | | _ | | | | | 3 | - 1 | 1 | | | | 8 | • | 4 | 1 | |
| Orchard Oriole | | | | | | | | | | | | | | - | | | - | 1 | 1 | |

Marshbird Callback Survey June 4, 2000

| Species TARGET SPECIES | 5322 | 5323 | 5324 | 5305 | 532 | e5305 | 1531 | 15329 | 5330 | 5331 | 5333 | 5332 | 1224 | 15225 | Cani | ran | Kan | d // |
|--|-------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|---------------|-------|---------------|---------|-------|-------|
| Species | Pt 1 | Pt 2 | Pt 3 | Pt 4 | Pt 5 | Pt 6 | Pt 7 | Pt 8 | Pt 9 | Pt 10 | Pt 11 | D+ 11 | 5227 Dt 12 | D+ 14 | 5334 Dt 15 | 5337 | 333 | 8 53 |
| TARGET SPECIES | | | | | | | | | | | | Ft 12 | . Ft 13 | Pt 14 | Pt 15 | Pt 16 | Pt 1/ | Pt 18 |
| Pied-billed Grebe | | | | | 1 | | 2 | | | | | | - | | | | - | - |
| Least Bittern | | | | | | 1 | 1 | | | | | | 1 | | | - | | - |
| Wood Duck | | | | 1 | | | 1 | | | 4 | 4 | | | | | | | |
| King Rail | | | | 2 | | | · | | | | 1 | | | | | | | |
| Sora | | | | | | | | | | | 1 | | | 3 | | | 2 | |
| Common Moorhen | | | | | | | | | | | | | - | | | | | |
| American Coot | | | | | | | | | | | | | - | | | | | |
| OTHER SPECIES | | | | | | | | | | | | | 1 | | | | | |
| Brown Pelican | | | | | | | | | | | | | - | | | | | |
| Double-crested Cormorant | | | | | | | | 5 | | | | - | | | 40 | 40 | | |
| Great Blue Heron | 1 fly | | | 1 | 1 | | 1 | 1 | | | | 1 | | | | | | 1 fly |
| Great Egret | , | | | | | | 1 | | 1 fly | | | 1 fly | | | | 1 | | 1 |
| Snowy Egret | | | | | | | 1 fly | | | | | 2 fly | | 1 fly | | 1+1 fly | | 1 fly |
| Tricolored Heron | | | | | | - | 1 Hy | | | | | 2 | | 2 fly | | | | 1 |
| Cattle Egret | | | | | | | | | | | | | | | | 1 | | |
| Green-backed Heron | | | | | | | | | | | | 10 | | | | | | |
| White Ibis | | | | | | | | | | | | | | | 1 | | 1 | |
| Mute Swan | | | | | | | | 4 | | | | | | | | | | |
| Canada Goose | | | | | | | | 1 | | | | | | | | | | |
| American Black Duck | | | | | | | | 6 fly | | 2 | | | 2+6y | 2 | | 2 | | |
| Mallard | | | | | | | | | | | | | | | | | | |
| American Wigeon | | | | | | | 2 | | | 2 fly | | | | | | 1 | | 2 |
| Bald Eagle | | | | | | | | | | | | | | | | | | 1 |
| Osprey | 6 | | | | | 0 | | | | | | | | | | | | |
| Bobwhite | 0 | 1 | | 4 | | 2 | | 2 | 1 | 2 | | | | | | | | 1 fly |
| Black-bellied Plover | | - 1 | | 1 | | | | | | | | | | | | | 1 | , |
| Semi-palmated Plover | | | | | | | | | | | | | | | | | | |
| Killdeer | | | | | | | | | | | | 1 | | | | | | |
| Greater Yellowlegs | | | | | 1 | | | | | | | | | 1 fly | | | | |
| Lesser Yellowlegs | | - | | | | | | | | | | 2 | | | | | | |
| Solitary Sandpiper | | | | | | | | | | | | | | | | | | |
| Spotted Sandpiper | | _ | | | | | | | | | | | | | | | | |
| Short-billed Dowitcher | | | | | | | | | | | | | | | | | | |
| Semi palmeted Condition | | - | | | | | | | | | | | | | | | | |
| Semi-palmated Sandpiper Least Sandpiper | | | | | | | | | | | | | | | | | | |
| | | | | | 1 | | | | | | | 1 | | | | | | |
| shorebird sp | | | | | | | | | | | | | | | | | | |
| Laughing Gull | | | | | | | | | | | | | | - | | | | |
| Ring-billed Gull | | | | | | | | | 1 | | | | | | | | | |
| Caspian Tern | | | | | | | | | | | | | | | | | | |
| Common Tern | | | | | | | | | | | | | | | | | | |
| Mourning Dove | | | | | | | | | | | | | | | | | | |
| Yellow-billed Cuckoo | | | | | | | | | | | | | 1 | | | | | |

Marshbird Callback Survey June 4, 2000 (cont)

| Chuck-wills-widow | | | | | | | | | | | | | | | | | | | | |
|---------------------------|---|---|---|---|---|---|---|---|---|---|---|-------|---|---|---|----|---|---|----|---|
| Ruby-throated Hummingbird | | | | | | | | | | | | | | | | | | | | |
| Red-bellied Woodpecker | | | | | | | | | | 1 | | | | | | | | | | |
| Downy Woodpecker | | | | | | | | | | | | | | | | | | | | |
| Yellow-shafted Flicker | | | | | | | | | | 1 | | | | | | | | | 1 | |
| Great Crested Flycatcher | | | | | | | | | | | | 2 | | 2 | | | | | | |
| Eastern Kingbird | | | 2 | 1 | | | 1 | 1 | | 1 | | | | 1 | | | | 1 | | |
| Purple Martin | | | | | | | | | | | | | | | | | | | | |
| Barn Swallow | | 1 | | | | 1 | | | | | | | | | | | | | | |
| Blue Jay | | | | | | | | | | | | | | | | | | | | |
| American Crow | | | | | | | | | | 1 | | | | | | | | | | |
| Fish Crow | | | | | | | | | | | | | | | | | | | | |
| Carolina Chickadee | | | | | | | | | | | | | | | | | | | | |
| Carolina Wren | | 1 | | | | | | | 2 | | | 1 | 2 | | | 1 | | | | |
| Gray Catbird | | | | | | | | | | | | | | | | | | | | |
| Brown Thrasher | | | 1 | | | 1 | | | | | | | | | | | | | | |
| Cedar Waxwing | | | | | | | | | | | | | | | | | | | | |
| White-eyed Vireo | | | | | | | | | | | | | | | | 1 | | | | |
| Red-eyed Vireo | | | | 1 | | | | | | | | | | | | | | | | |
| European Starling | | | | | | | | | | | | | | | | | | | | |
| Yellow Warbler | | | | | | | | | | | | | | | | | | | | |
| Prairie Warbler | | | | | | | | | | | | 1 | 1 | | | | | | 1 | |
| Blackpoll Warbler | | | | | | | | | | | | | | | | | | | | |
| Common Yellowthroat | | | 2 | 1 | | 1 | | | | | 1 | 1 | | | | | | | 1 | |
| Yellow-breasted Chat | | | | 1 | | | 1 | | | | | | 1 | 1 | | | | | 1 | |
| Cardinal | 1 | | | | | | 1 | | | | | 1 | 1 | | | | | | | |
| Blue Grosbeak | | | 1 | | | | | | | | | | | | | | | | | |
| Indigo Bunting | | | | 1 | | | | | | | | | 1 | 1 | | 1 | | | | |
| Rufous-sided Towhee | | | 2 | | | 1 | | | | | | 1 | | | | 1 | | | | |
| Field Sparrow | | | | | | | | | | | | | | | | | | | | |
| Red-winged Blackbird | X | X | X | Х | х | Х | Х | | Х | Х | Х | XX | X | | Х | | X | | Χ | X |
| Eastern Meadowlark | | 1 | | | | | | | | | | | | 1 | | 1 | | 1 | | |
| Boat-tailed Grackle | | | 2 | 1 | | | | | 1 | | 1 | 1 | | 4 | | 10 | | 8 | 4 | _ |
| Common Grackle | | 2 | 8 | 2 | 2 | 3 | | | 2 | | | 3 | 1 | | | | | | 10 | |
| Brown-headed Cowbird | | | | | | | | | | | | | | | | | | | | |
| Orchard Oriole | | | | | | | | | | | | | | | | | | | | |

Marshbird Callback Survey June 14, 2000

| CENNUM# | 3370 | 5347 | 5342 | LS34: | 3 5344 | 15345 | 5346 | 5347 | 5348 | 5246 | 1250 | 1251 | 1200 | rata | | | | - |
|----------------------------|-------|------|------|-------|--------|-------|------|------|-------|-------|-------|---------------|-------|-------|-------|-------|-------|-------|
| TARCET SPECIES | Pt 1 | Pt 2 | Pt 3 | Pt 4 | Pt 5 | Pt 6 | Pt 7 | Pt 8 | Pt 9 | Pt 10 | Pt 11 | 030 l | D4 42 | 5353 | 5354 | 5355 | 5356 | 53 |
| TARGET SPECIES | | | | | | | | | | | 7 | 6351 Pt 12 | Pt 13 | Pt 14 | Pt 15 | Pt 16 | Pt 17 | Pt ' |
| r led-billed Grebe | | 1 | | | 1 | | | | | | | | | | | | | |
| Least Bittern | | | | 1 | 1 | | | | 1 | | | | 2 | | | 1 | | |
| Wood Duck | | | | | | | 2 | | 1 fly | | 2 | | | | | | | |
| King Rail | | | | 2 | | | _ | | 1 Hy | | | | | | | | | 1 fly |
| Sora | | | | | | | | | | | | | | | 1 | | | |
| Common Moorhen | | | | | | | 2 | | | | | | | | | | | |
| American Coot | | | | | | | 9 | | | | - | | | | | | | |
| OTHER SPECIES | | | | | | | 3 | | | | | | 1 | | 1 | | | |
| Brown Pelican | | | | | | | | | | | | | | | | | | |
| Double-crested Cormorant | | | | | | | | | | | | | | | | | | |
| Great Blue Heron | | | | | | | 1 | | - | | 1 | | | | | | | |
| Great Egret | 1 fly | | | 1 | 1 | | | | 1 | | | | | | | | | |
| Snowy Egret | | | | | 1 | | 2 | | 2 fly | 1 | _ | 1 fly | | | 2 | 2 | 1 | |
| Little Blue Heron | | | | | | | | | 2 | | 5 | | | | 3 | 15 | • | 1 |
| Tricolored Heron | | | | | | | | | | | | | | | | 2 | | |
| Cattle Egret | | | | | | | | | | | | | | | | 1 | | |
| Green-backed Heron | | | | | | | | | | | | | | | | 1 | | |
| Yellow-crowned Night-Heror | 1 | | | | | | | | | 1 fly | | | | | | | | |
| White Ibis | | | | | | | | | | 2 | | | | | | | - | |
| Glossy Ibis | | | | | - | | | | | | | | | | | | | |
| Mute Swan | | | | | - | - | | | | | 1 fly | | 1 fly | 1. | 1 fly | | - | |
| Canada Goose | | | | | | | | | | | | | | | | | | |
| American Black Duck | | | | | | | | | | | | | | 1 | 22 | | | - 00 |
| Mallard | 1 fly | - | | | 0.51 | | | | | | | | | | ~~ | | | 23 |
| American Wigeon | 1 Hy | | | | 2 fly | | 2 | | | 2 | | | | 1 | 2 | | | |
| Bald Eagle | | | | | | | | | | | | | | - + | 2 | | _ | 14 |
| Osprey | | - | | | | | | | | | | | | | | | | |
| Bobwhite | | | | | 1 | | | 1 | | | | 1 fly | | | | | | |
| Black-bellied Plover | | | 1 | | | | | | | | | · Hy | | | | | | |
| Semi-palmated Plover | | | | | | | | | | | | | | | | | | |
| Killdeer | | | | | | | | | | | | | | | | | | |
| Greater Yellowlegs | | | | | | | | | | | 1 | | | | | | | |
| esser Yellowlegs | | | | | | | | | 1 | | 1 | | | _ | | | | |
| Solitary Sandpiper | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| potted Sandpiper | | | | | | | | | | | | | - | | | | | |
| hort-billed Dowitcher | | | | | | | | | | | | | | | | | | |
| emi-palmated Sandpiper | | | | | | | | | | | | | | | | | | |
| east Sandpiper | | | | | | | | | | | | | | | | | | |
| norebird sp | | | | | | | | | | | | | - | | | | | |
| aughing Gull | | | | | | | | | | | | 2 | fly | | | | | |
| ing-billed Gull | | | | | | | | | | | | | | | | | | |
| aspian Tern | | | | | | | | | | | | | | | | | | |

Marshbird Callback Survey June 14, 2000 (cont)

| Royal Tern | | | | | | | | | | 1 fly | | | | | | | | | | | |
|--------------------------|-------|-----|-----|---|---|---|---|---|---|--------|-----|-------|---|-----|----|---|---|---|---|----|---|
| Common Tern | | | | | | | | | | | | | | | | | | | | | |
| Mourning Dove | 1 fly | | | 1 | | | | | | | | | | 1 | | | | | | | |
| Yellow-billed Cuckoo | | 1 | | | | | | | | | | | | | | | | | | | |
| Chuck-wills-widow | | | | | | | | | | | | | | | | | | | | 1 | |
| Ruby-throated Hummingbir | d | | | | | | | | | | | | | | | | | | | | |
| Red-bellied Woodpecker | | | | | | | | | | 1 | | | | | | | | | | | |
| Downy Woodpecker | | | | | | | | | | - | | | | | | | | | | | |
| Yellow-shafted Flicker | | | | | - | _ | | | | | | | | 1 | | | | | | 1 | |
| Eastern Wood-Pewee | | | | | | | | | 1 | | | | | 1 | | | | | | | |
| Great Crested Flycatcher | | | | | | | | | | | | | | | | | 1 | | | 1 | |
| Eastern Kingbird | 1 | | | 1 | | | | | | 1 | | | | | | | | 1 | | 1 | |
| Purple Martin | 1 | | | | | | | | | | | | | | | | | | | | |
| Barn Swallow | 1 fly | | | | - | | | | | | | | | | | | | | | 1 | |
| Blue Jay | 1 Hy | | | | | | | | | | | | | | | | | | | | |
| American Crow | | | | | 2 | 2 | 1 | 2 | 2 | | | 2 | | - | | | + | | | 1 | |
| Fish Crow | | - | | | | | | | | | | | | + | | | + | | - | 1 | |
| Carolina Chickadee | | | | | | | | | | | | | | 1 | | | _ | | | 1 | _ |
| Carolina Wren | 1 | 1 | | | 1 | | | | | 1 | | | | - | | | 1 | 2 | | 1 | 1 |
| Gray Catbird | - | - ' | | - | | 1 | | | | | | | | | | | + | | - | - | 1 |
| Northern Mockingbird | | | 1 | | 1 | | | | | | | | | | | | + | | | + | |
| Brown Thrasher | | | - 1 | | - | | | 1 | | - | | | | + | | | + | | | + | _ |
| Cedar Waxwing | | | | | | _ | | | | | | | - | + | | | + | | | + | |
| White-eyed Vireo | | - | | | | 1 | | | | | | 1 | - | - | | | 1 | | | +- | |
| | + | | | - | | | | | | | | | - | + | | | - | | | - | |
| Red-eyed Vireo | | | - | - | - | - | | | | | | | | + | | | | | - | + | _ |
| European Starling | | | | - | | - | | - | | | | | | | | | - | | | - | |
| Yellow Warbler | | | - | | - | - | | | | - | 1 | | - | +- | | | - | | | + | |
| Pine Warbler | | | | | - | - | - | | | | - 1 | 1 | - | 1 - | | | 1 | | - | + | |
| Prairie Warbler | - | | | - | | | | | - | | | 1 | | 1 - | | | 1 | | | + | |
| Blackpoll Warbler | - | 0 | - | - | - | | | | | - | | - | | 4 | | | 4 | | | 4 | 2 |
| Common Yellowthroat | 1 | 2 | 2 | 1 | 1 | - | - | | | - | | 1 | | 1 | | | 2 | | | 1 | |
| Yellow-breasted Chat | 1 | | | 1 | 1 | - | - | | | | - 4 | 1 | | 1 | | | 1 | | - | 1 | |
| Cardinal | 1 | | - | - | 1 | 1 | | | - | | 1 | 2 | | 1 | | | 1 | | | 4 | _ |
| Blue Grosbeak | - | | | - | - | | | | | - | | 1 | | _ | - | | - | 1 | | 1 | 4 |
| Indigo Bunting | 1 | | | 1 | - | | | | | | | 1 | - | 1 | 1 | | 4 | | - | 1 | 1 |
| Rufous-sided Towhee | | | | | 2 | 1 | 1 | 1 | | | | 1 | | | 1 | | 1 | | - | - | - |
| Field Sparrow | | | | | | | | | | | | | | - | 1 | | _ | | - | 1 | 1 |
| Red-winged Blackbird | X | Х | Х | Х | Х | X | Х | X | X | Х | X | X | Χ | X | | X | X | | X | X | |
| Eastern Meadowlark | | 1 | | | | | | | | | | | | | 1 | | | | | | |
| Boat-tailed Grackle | | 2 | | | | 1 | | 2 | | | | 2 fly | 2 | 2 | 12 | | | 8 | | 4 | 6 |
| Common Grackle | 1 | | | | | | | | 1 | +1 fly | | | | | 1 | | | | | 4 | 5 |
| Brown-headed Cowbird | | | | | | | | | | | | | | | | | | | | | |
| Orchard Oriole | | | | | | | | | | | | | | | | | | | | | |

